

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the present application.

IN THE CLAIMS:

1. (Currently Amended) A An isolated DNA encoding a mutant FRT sequence derived from yeast 2 μ DNA comprising a nucleotide mutant FRT sequence shown in ~~having a sequence resulting from substitution of nucleotides at middle 8-bp (spacer region) in the following wild type FRT sequence (SEQ ID NO: 1) derived from yeast 2- μ DNA:~~

| | | |
|--------------------------|----------|------------------|
| | 1234678 | |
| 5'-GAAGTTCCTATAC | TTTCTAGA | GAATAGGAACTTC-3' |
| spacer region | | |

~~with nucleotide sequences selected from the group consisting of the following (1) to (4):~~

- ~~(1) TCTCTGGA (f2161) (SEQ ID NO:2)~~
- ~~(2) TCTCCAGA (f2151) (SEQ ID NO:3)~~
- ~~(3) TATCTTCA (f2262) (SEQ ID NO:4) and~~
- ~~(4) TTTCTGGA (f61) (SEQ ID NO:5)~~

~~wherein said mutant FRT sequence is any one of SEQ ID NOS: 2 to 5.~~

2. (Currently Amended) A An isolated DNA comprising a mutant FRT sequence consisting of a sequence, comprising at least one nucleotide substitution in the mutant FRT sequence other than in an 8-bp spacer region spanning nucleotide positions 14-21 in the mutant FRT sequence defined in claim 1, wherein said mutant FRT sequence possesses ~~possessing~~ the following properties (A) and (B):

(A) causing no specific DNA recombination reaction with wild type FRT, even if FLP recombinase is present, and

(B) causing specific DNA recombination reaction with another mutant FRT sequence having an identical sequence thereto in the presence of recombinase FLP₇

~~wherein the mutant FRT sequence consists of a sequence further comprising substitutions of at least one nucleotide in a region other than the spacer region in the mutant FRT sequence defined in claim 1.~~

3. (Currently Amended) The DNA ~~comprising the mutant FRT sequences~~ according to claim 1 or 2, wherein said mutant FRT sequence possesses the property of causing no specific DNA recombination reaction ~~is caused~~ with a ~~another~~ mutant FRT sequence having a different sequence in the 8-bp spacer region in the presence of ~~different therefrom even if~~ recombinase FLP ~~is present~~.

4. (Previously Presented) A DNA comprising at least one wild type FRT sequence and at least one mutant FRT sequence defined in claim 1.

5. (Currently Amended) The DNA according to claim 4, having a desired nucleotide sequence ~~gene~~ ~~at~~ between the wild type FRT sequence and the mutant FRT sequence.

6. (Currently Amended) A DNA comprising at least two mutant FRT sequences defined in claim 3, wherein the mutant FRT sequences are different relative to one another in the 8-bp spacer region ~~having different sequences in each other defined in claim 3.~~

7. (Currently Amended) The DNA according to claim 6, further comprising ~~having~~ a desired nucleotide sequence ~~gene~~ ~~at~~ between the two mutant FRT sequences ~~having different sequences in each other.~~

8. (Previously Presented) A cell which is transformed with the DNA of claim 4.

9. (Currently Amended) A method for replacing a nucleotide sequence ~~gene~~, comprising the steps of ~~characterized by~~
reacting a first DNA comprising in sequential order a wild type FRT sequence, a first nucleotide sequence of interest and a

mutant FRT sequence shown in any one of SEQ ID NOS: 2-5 the following DNA (a) and with a second DNA comprising in sequential order a wild type FRT sequence, a second nucleotide sequence of interest which nucleotide sequence is different from that of the first nucleotide sequence of interest, and a mutant FRT sequence which is identical to the mutant FRT sequence of the first DNA (b) in the presence of recombinase FLP,

thereby obtaining the following DNA (c):

DNA (a): a DNA having a wild type FRT sequence, a gene A and a mutant FRT sequence of any one of claims 1 to 3, in this order;

DNA (b): a DNA having a wild type FRT sequence, a gene B and the same mutant FRT sequence as that of the above DNA (a), in this order;

DNA (c): a DNA in which the first nucleotide sequence of interest gene A is replaced by the second nucleotide sequence of interest gene B in the first DNA above DNA (a);

wherein each of the gene A and the gene B is any gene having a sequence different from each other.

10. (Currently Amended) A method for replacing a nucleotide sequence gene, comprising the steps of characterized by

reacting a first DNA comprising in sequential order a mutant FRT sequence defined in claim 3, a first nucleotide sequence of interest and a second mutant FRT sequence, wherein the first and

second FRT sequences are different relative to one another in the spacer region with a second DNA comprising in sequential order the first mutant FRT sequence, a second nucleotide sequence of interest which nucleotide sequence is different from that of the first nucleotide sequence of interest, and the second mutant FRT sequence
~~the following DNA (d) and DNA (e) in the presence of recombinase FLP,~~

thereby obtaining ~~the following DNA (f):~~

~~DNA (d): a DNA having two mutant FRT sequences of claim 3 having different sequences in each other, which are referred as mutant FRT sequence 1 and mutant FRT sequence 2, respectively, and a gene A, arranged in the order of the mutant FRT sequence 1, the gene A, and the mutant FRT sequence 2;~~

~~DNA (e): a DNA having the mutant FRT sequence 1, a gene B, and the mutant FRT sequence 2, in this order;~~

~~DNA (f): a DNA in which the first nucleotide sequence of interest gene A is replaced by the second nucleotide sequence of interest gene B in the first DNA above DNA (d);~~

~~wherein each of the gene A and the gene B is any gene having a sequence different from each other.~~

11. (Currently Amended) The method according to claim 9, 10,
or 21 ~~or 10~~, wherein the second nucleotide sequence of interest
~~characterized in that the gene B is not a functional gene.~~

12. (Currently Amended) The method according to claim 9, 10,
or 21 ~~or 10~~, wherein said first nucleotide sequence of interest
~~characterized in that the gene A is not a functional gene.~~

13. (Currently Amended) The method according to claim 9, 10,
or 21, wherein said first DNA ~~(a) or DNA (d)~~ is a chromosomal DNA
of a cell, and said second DNA is ~~DNA (b) or DNA (e)~~ ~~is~~ a plasmid
DNA or a DNA of double-stranded circular DNA virus.

14. (Currently Amended) The method according to claim 9, 10,
or 21, wherein said first DNA ~~(a) or DNA (d)~~ is a chromosomal DNA
of a cell, and said second DNA ~~(b) or DNA (e)~~ has a property for
forming a double-stranded circular DNA by intracellular conversion.

15. (Currently Amended) The method according to claim 9, 10,
or 21, wherein said first DNA ~~(a) or DNA (d)~~ is a chromosomal DNA
of double-stranded DNA virus, and said second DNA ~~(b) or DNA (e)~~ is
a plasmid DNA or a DNA of double-stranded circular DNA virus.

16. (Currently Amended) The method according to claim 9, 10, or 21, wherein said first DNA ~~(a) or DNA (d)~~ is a chromosomal DNA of double-stranded DNA virus, and said second DNA ~~(b) or DNA (c)~~ has a property of forming a double-stranded circular DNA by intracellular conversion.

17. (Currently Amended) The method according to claim 15 ~~or~~ ~~16~~, wherein the double-stranded DNA virus is adenovirus.

18. (Currently Amended) A transgenic non-human animal carrying the DNA of claim 4 on chromosomes.

19-20. (Canceled).

21. (New) A method for replacing a nucleotide sequence, comprising the step of reacting

a first DNA comprising in sequential order a wild type FRT sequence, a first nucleotide sequence of interest and a mutant FRT sequence defined in claim 2, with

a second DNA comprising in sequential order a wild type FRT sequence, a second nucleotide sequence of interest which nucleotide sequence is different from that of the first nucleotide sequence of interest, and the mutant FRT sequence,

in the presence of recombinase FLP,

thereby obtaining a DNA in which the first nucleotide sequence of interest is replaced by the second nucleotide sequence of interest in the first DNA.

22. (New) The method according to claim 16, wherein the double-stranded DNA virus is adenovirus.